MATHEMATICS MOCK TEST

Class: IX | Set: 25

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____   ROLL NO: _____

SECTION A   (1 Mark Each)

1. Using Heron's formula, what is the semi-perimeter (s) of a triangle with sides a, b, and c?

2. Find the radius of a sphere whose surface area is 616 cm^2.

3. Find the value of y when $x = 2$ in the equation $3x - 2y = 4$.

4. What is the sum of any two opposite angles of a cyclic quadrilateral?

5. Find the class mark of the class interval $120 - 150$.

SECTION B   (2 Marks Each)

6. Find the area of a triangle whose sides are 13 cm, 14 cm, and 15 cm using Heron's formula.

7. The total surface area of a cube is 216 cm^2. Find its volume.

8. In a circle of radius 5 cm, find the length of the chord which is at a distance of 4 cm from the centre.

9. The angles of a quadrilateral are in the ratio $3 : 4 : 5 : 6$. Find all the angles.

10. Find the mean of the prime numbers between 1 and 15.

SECTION C   (3 Marks Each)

11. A park is in the shape of a quadrilateral $ABCD$, has $\angle C = 90°$, $AB = 9$ m, $BC = 12$ m, $CD = 5$ m and $AD = 8$ m. How much area does it occupy? (Use Heron's formula for one of the triangles).

12. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

13. A conical tent is 10 m high and the radius of its base is 24 m. Find the slant height of the tent and the cost of canvas required to make it if 1 m^2 costs ₹70.

14. Draw the graph of the linear equation $2x + 3y = 12$. At what points does the graph cut the x-axis and y-axis?

SECTION D   (4 Marks Each)

Question 15: The sides of a triangular plot are in the ratio $3 : 5 : 7$ and its perimeter is 300 m. Find its area. Also, find the cost of leveling the plot at the rate of ₹5 per square metre.

16. Question 16: Prove that the line segment joining the mid-points of two sides of a triangle is parallel to the third side and is half of it.

VIVA VOCE   (5 Marks)

- **Heron's Formula:** When is Heron's formula more useful than the basic $\frac{1}{2} \times$ base $\times$ height formula?

- **Circles:** Define a 'Sector' and a 'Segment'.

- **Quadrilaterals:** What is the main difference between a parallelogram and a trapezium?

- **Mensuration:** What is the formula for the curved surface area of a hemisphere?

- **Algebra:** How many solutions can a linear equation in two variables have?